

Amendment to the Claims

- 1 (Currently Amended). An Internet Protocol (IP) multicast control system, comprising:
a first module capable of facilitating IP multicast control connections between a first apparatus and a second apparatus;
the first apparatus further includes:
a module capable of controlling a plurality of network elements of the first apparatus;
a module capable of supporting communication with at least one subtending network node of the first apparatus; and
a module capable of supporting communication with at least one Digital Subscriber Line (DSL) apparatus; and
each one of said modules is interconnected with each other one of said modules; and
a second module capable of enabling termination of a control protocol of the first module and capable of being supported at an Asynchronous Transfer Mode (ATM) layer of the second apparatus.
- 2 (Original). The system of claim 1 wherein the first module is capable of being supported at the IP layer of the first apparatus.
- 3 (Original). The system of claim 1 wherein the second apparatus is subtending with respect to the first apparatus.
- 4 (Original). The system of claim 1 wherein:
the first module is an IP Gateway Module; and
the second module is a control protocol terminating module.

5 (Currently Amended). The system of claim [[4]] 1 wherein:

the first apparatus further includes:

- a Network Element Control Module;
- a Subtending Interface Module; and
- a Digital Subscriber Line (DSL) Interface Module; and

the IP Gateway Module, the Network Element Control Module, the Subtending Interface Module and the DSL Interface Module are each interconnected.

6 (Canceled).

7 (Currently Amended). The system of claim [[6]] 1 wherein:

- the first apparatus includes a first Digital Subscriber Line Multiplexor (DSLAM);
- the first DSLAM includes an IP layer;
- the IP Gateway Module is capable of being supported at the IP layer of the first apparatus; and
- the IP Gateway Module is a network element of the first DSLAM.

8 (Original). The system of claim 7 wherein the second apparatus is subtending with respect to the first DSLAM.

9 (Original). The system of claim 8 wherein:

- the second apparatus includes a second DSLAM; and
- the Gateway Control Protocol Terminating Module is a network element of the second DSLAM.

10 (Original). The system of claim 1 wherein:

- the first apparatus includes an IP Gateway apparatus including an IP layer; and
- the IP Gateway Module is a network element of the IP Gateway apparatus.

11 (Original). The system of claim 10 wherein the IP Gateway Module is capable of being supported at the IP layer of the IP gateway apparatus.

12 (Original). The system of claim 10 wherein the IP gateway apparatus and the second apparatus are network nodes of a common network of network nodes.

13 (Original). The system of claim 12 wherein the common network operates in accordance with ATM.

14 (Original). The system of claim 10 wherein:
the second apparatus includes a DSLAM;
the ATM layer is integral with the DSLAM; and
the Gateway Control Protocol Terminating Module is a network element of the DSLAM.

15 (Original). The system of claim 10 wherein the IP gateway apparatus and the second apparatus are network nodes of a first network of network nodes and a second network of network nodes, respectively.

16 (Original). The system of claim 15 wherein:
the first network node operates in accordance with IP; and
the second network node operates in accordance with ATM.

17 (Original). The system of claim 10 wherein:
the second apparatus is a hub apparatus; and
a third apparatus is a subtending apparatus with respect to the hub apparatus.

18 (Currently Amended). A communication apparatus, comprising:
a first network node including an Internet Protocol (IP) Gateway Module and a Digital Subscriber Line Multiplexor (DSLAM);
the DSLAM includes an IP layer; and
the IP Gateway Module is a network element of the DSLAM; and
a second network node including a Gateway Control Protocol Terminating Module;
wherein the IP Gateway Module is capable of facilitating IP multicast control connections between the first network node and the second network node and wherein the Gateway Control Protocol Terminating Module is capable of enabling termination of a control protocol of the IP Gateway Module and is capable of being supported at an Asynchronous Transfer Mode (ATM) layer of the second network node.

19 (Original). The communication apparatus of claim 18 wherein the second network node is subtending with respect to the first network node.

20 (Canceled).

21 (Currently Amended). The communication apparatus of claim [[20]] 18 wherein the IP Gateway Module is capable of being supported at the IP layer of the DSLAM.

22 (Currently Amended). The communication apparatus of claim [[20]] 18 wherein:
the DSLAM further includes:
a Network Element Control Module;
a Subtending Interface Module; and
a Digital Subscriber Line (DSL) Interface Module; and
the Network Element Control Module, the Subtending Interface Module and the DSL Interface Module are each interconnected.

23 (Currently Amended). The communication apparatus of claim ~~[[20]]~~ 18 wherein:
the DSLAM further includes:

- a module capable of controlling a plurality of network elements of the DSLAM;
 - a module capable of supporting communication with at least one subtending network node of the DSLAM; and
 - a module capable of supporting communication with at least one Digital Subscriber Line (DSL) apparatus; and
- each one of said modules is interconnected with each other one of said modules.

24 (Currently Amended). The communication apparatus of claim ~~[[20]]~~ 18 wherein the second apparatus is subtending with respect to the first DSLAM.

25 (Original). The communication apparatus of claim 24 wherein:
the first network node includes a second DSLAM; and
the Gateway Control Protocol Terminating Module is a network element of the second DSLAM.

26 (Original). The communication apparatus of claim 18 wherein:
the first network node includes an IP Gateway apparatus including an IP layer; and
the IP Gateway Module is a network element of the IP Gateway apparatus.

27 (Original). The communication apparatus of claim 26 wherein the IP Gateway Module is capable of being supported at the IP layer of the IP Gateway apparatus.

28 (Original). The communication apparatus of claim 26 wherein the IP gateway apparatus and the second apparatus are network nodes of a common network of network nodes.

29 (Original). The communication apparatus of claim 28 wherein the common network operates in accordance with ATM.

30 (Original). The communication apparatus of claim 26 wherein the first network node and the second network node are network nodes of a first network of network nodes and a second network of network nodes, respectively.

31 (Original). The communication apparatus of claim 30 wherein:

the first network node operates in accordance with IP; and
the second network node operates in accordance with ATM.

32 (Original). The communication apparatus of claim 26 wherein:

the second network node is a hub network node; and
a third network node is a subtending network node with respect to the hub network node.

33 (Currently Amended). A method for facilitating Internet Protocol (IP) multicast services within a deployed network of network elements, comprising:

implementing, at an IP layer of ~~the~~ a first network node, functionality capable of controlling multicast connections between the first network node and a second network node an IP Gateway control protocol, wherein the first network node includes a Subscriber Line Multiplexor (DSLAM), the IP layer is integral with the DSLAM, and implementing said functionality capable of controlling multicast connections includes implementing said functionality at the IP layer of the DSLAM;
and

implementing, at an Asynchronous Transfer Mode (ATM) layer of the second network node, functionality capable of terminating the IP Gateway control protocol.

34 (Canceled).

35 (Original). The method of claim 33 wherein implementing said functionality capable of controlling multicast connections includes coupling an IP Gateway Module with at least one of:

- a Network Element Control Module,
- a Subtending Interface Module; and
- a Digital Subscriber Line (DSL) Interface Module.

36 (Original). The method of claim 33 wherein implementing said functionality capable of controlling multicast connections includes coupling a module capable of controlling multicast connections with at least one of:

- a module capable of controlling a plurality of network elements of a first network node;
- a module capable of supporting communication with at least one subtending network node of the first network node; and
- a module capable of supporting communication with at least one Digital Subscriber Line (DSL) apparatus.

37 (Original). The method of claim 33 wherein:

- the first network node includes an IP Gateway apparatus;
- the IP layer is integral with the IP Gateway apparatus; and
- implementing said functionality capable of controlling multicast connections includes implementing said functionality at the IP layer of the IP Gateway apparatus.